REPORT OF

MISSOURI DEPARTMENT OF TRANSPORTATION AND HIGHWAY PATROL EMPLOYEES' RETIREMENT SYSTEM

JUNE 30, 2021

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INDEPENDENT AUDITORS' REPORT

The Board of Trustees
Missouri Department of Transportation and
Highway Patrol Employees' Retirement System

Report on the Financial Statements

We have audited the accompanying statement of fiduciary net position of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (the System), as of June 30, 2021, and the related statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, which collectively comprise the System's basic financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with U.S. generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the System's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System as of June 30, 2021, and the changes in fiduciary net position for the year then ended, in conformity with U.S. generally accepted accounting principles.

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis on pages 3 through 5 and the schedules of changes in the employers' net pension liability, employers' contributions, investment returns, changes in net OPEB liability and related ratios, MPERS' proportionate share of net OPEB liability, and related notes on pages 28 through 31 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context.

We have applied certain limited procedures to the required supplementary information in accordance with U.S. generally accepted auditing standards, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The additional information presented on pages 32 through 34 are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The additional information presented on pages 32 through 34 is the responsibility of management and was derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. The additional information presented on pages 32 through 34 has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with U.S. generally accepted auditing standards. In our opinion, the additional information presented on pages 32 through 34 is fairly stated in all material respects in relation to the basic financial statements as a whole.

Williams-Keepers LLC

November 5, 2021

Management's Discussion and Analysis

The management of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (the System, or MPERS) provides this discussion and analysis of the System's financial performance for the fiscal year ended June 30, 2021. While this discussion is intended to summarize the financial status of MPERS, readers should consider this information in conjunction with the information that is furnished in the more detailed financial statements and corresponding notes.

DESCRIPTION OF BASIC FINANCIAL STATEMENTS

As required by the Governmental Accounting Standards Board (GASB) accounting standards, this financial report consists of Management's Discussion and Analysis (this section), the basic financial statements (including notes to the basic financial statements), and other required supplementary information.

Financial Statements report information about MPERS, using accounting methods similar to those used by private-sector companies, by using the economic resources measurement focus and accrual basis of accounting. These statements provide both long-term and short-term information about the System's overall financial status. These statements follow this Management's Discussion and Analysis section:

- The *Statement of Fiduciary Net Position* includes all the System's assets and deferred outflows of resources, and liabilities and deferred inflows of resources, with the difference reported as net position.
- The *Statement of Changes in Fiduciary Net Position* accounts for all the current year's additions (income) and deductions (expenses), regardless of when cash is received or paid.

Notes to the Financial Statements are included following the financial statements. The notes to the financial statements provide additional information that is essential for a full understanding of the data provided in the financial statements.

Required Supplementary Information follows the notes and further supports the information in the financial statements.

Supplementary Information follows the required supplementary information and provides additional detailed administrative and investment expense information.

ANALYSIS OF FINANCIAL POSITION AND RESULTS OF OPERATIONS

Overall, the financial position of MPERS increased by $642.3 million, reported as the "net increase". This is primarily a result of the increase in the fair value of investments for the year ended June 30, 2021. The funded status of the plan showed an increase of 1.77%, primarily due to the positive investment returns.

The following schedules present summarized comparative data from the System's financial statements for each of the fiscal years ended June 30, 2021 and 2020. Following each schedule is a brief summary providing explanation and analyses of the major reasons for changes in the condensed financial statements.

Summarized Comparative Statements of Fiduciary Net Position

	As of June 30, 2021	As of June 30, 2020	% Change 2021 / 2020
Cash and Receivables	$ 27,488,024	$ 19,630,328	40.0
Investments	3,002,537,498	2,352,666,839	27.6
Invested Securities Lending Collateral	117,448,756	108,567,739	8.2
Capital Assets	383,217	321,676	19.1
Total Assets	**3,147,857,495**	**2,481,186,582**	**26.9**
Deferred Outflows of Resources	**361,851**	**31,054**	**1,065.2**
Accounts Payable	19,344,757	2,868,289	574.4
OPEB Obligation	2,019,603	1,552,393	30.1
Securities Lending Collateral	122,747,636	114,948,267	6.8
Total Liabilities	**144,111,996**	**119,368,949**	**20.7**
Deferred Inflows of Resources	**182,122**	**248,799**	**-26.8**
Net Position Restricted for Pensions	**$ 3,003,925,228**	**$ 2,361,599,888**	**27.2**

The increase in cash and receivables is primarily attributable to an increase of investment sales receivable as of June 30, 2021. Fluctuations in this area are normal, based on investment activity.

The System's investments represent the main component of total assets. These investments include equities, fixed income, limited partnerships, hedge funds, and short-term investments. The increase in fair value of investments as of June 30, 2021, is due to the strong investment performance during the fiscal year. The fiscal year 2021 investment return was 30.80% as calculated on a time-weighted rate of return methodology.

Capital assets increased in fiscal year 2021 due to the purchase of a parcel of land adjacent to the MPERS office.

Deferred outflows of resources are related to Other Post-Employment Benefits (OPEB), required by Governmental Accounting Standards Board (GASB) Statement 75. The deferred outflows of resources relate to the timing of contributions paid and changes in assumptions.

The increase in accounts payable for fiscal year 2021 is primarily attributable to higher investment purchases payable. Fluctuations in this area are normal, based on investment activity.

The largest component of liabilities is securities lending collateral. This represents the amount owed for collateral to be returned as the result of investment securities lent. The increase in securities lending collateral liability from fiscal year 2020 to fiscal year 2021 is due to more securities being utilized for lending. The corresponding securities lending collateral asset is valued at a lower amount than the securities lending collateral liability due to the fair value of the securities on loan being less than the collateral value.

Deferred inflows of resources are related to OPEB. The deferred inflows of resources relate primarily to the amortization of changes in actuarial assumptions.

The System's net position restricted for pensions was $3.004 billion at June 30, 2021, a $642.3 million increase from the $2.362 billion net position at June 30, 2020.

Summarized Comparative Statements of Changes in Fiduciary Net Position

	Year Ended June 30, 2021	Year Ended June 30, 2020	% Change 2021 / 2020
Contributions	$ 217,389,127	$ 220,902,777	1.6
Net Investment Income (Loss)	699,644,251	(10,673,270)	6,655.1
Other Income	286	5,412	-94.7
Total Additions	**917,033,664**	**210,234,919**	**336.2**
Benefits	270,122,851	267,605,833	0.9
Administrative Expenses	4,585,473	4,291,028	6.9
Total Deductions	**274,708,324**	**271,896,861**	**1.0**
Net Increase (Decrease)	642,325,340	(61,661,942)	-1,141.7
Net Position – Beginning	2,361,599,888	2,423,261,830	-2.5
Net Position – Ending	**$3,003,925,228**	**$2,361,599,888**	**27.2**

Net investment income, a primary component of plan additions, was $699.6 million for fiscal year 2021, which represented a 30.80% return for the fiscal year ended June 30, 2021. In comparison, the fiscal year 2020 loss of $10.7 million represented an investment return of negative 0.46%. Annual fluctuations within the broad investment markets are outside the control of the System and are expected to fluctuate from year to year; however, fiscal year 2021 was an exceptional year as markets recovered from the losses incurred during the onset of the COVID-19 pandemic. The Board of Trustees has approved a diversified asset allocation that, over long periods of time, is expected to realize the assumed actuarial rate of investment return of 6.50%.

Total benefits increased $2.5 million from 2020 to 2021. Benefits in 2021 increased due to an increase in the total number of retirees.

The increase in administrative expenses is due to higher personal services and related benefit expenses that are a result of the strong investment returns in fiscal year 2021.

CURRENTLY KNOWN FACTS AND RECENT EVENTS

Based on the June 30, 2021 actuarial valuation, the Board of Trustees approved an increase to the required state contribution rate for uniformed patrol of 58.65%, effective July 1, 2022. The rate applied to non-uniformed payroll (MoDOT, civilian patrol, and MPERS) remains at 58.00%.

Based on the June 30, 2020 actuarial valuation, the Board of Trustees approved no change in the required state contribution rate, effective July 1, 2021. The rate applied to both non-uniformed payroll (MoDOT, civilian patrol, and MPERS) and uniformed patrol payroll remains at 58.00%.

CONTACTING THE RETIREMENT SYSTEM'S MANAGEMENT

This financial report is designed to provide a general overview of the System's finances. Questions about this report or requests for additional financial information should be sent to:

MoDOT and Patrol Employees' Retirement System
PO Box 1930
Jefferson City, MO 65102-1930
mpers@mpers.org

Statement of Fiduciary Net Position

As of June 30, 2021

ASSETS	
Cash	$ 428,926
Receivables	
Contributions	8,858,776
Accrued Interest and Income	4,808,672
Investment Sales	13,388,650
Other	3,000
Total Receivables	27,059,098
Investments, at Fair Value	
Equities	446,097,367
Fixed Income	639,560,365
Limited Partnerships	1,223,937,373
Hedge Funds	108,412,343
Short-Term Investments	584,530,050
Total Investments	3,002,537,498
Invested Securities Lending Collateral	117,448,756
Capital Assets, Net of Depreciation	
Land	159,293
Building and Improvements	581,618
Furniture, Equipment, and Software	3,438,789
Accumulated Depreciation	(3,796,483)
Capital Assets, Net of Depreciation	383,217
TOTAL ASSETS	**$ 3,147,741,574**
DEFERRED OUTFLOWS OF RESOURCES	**$ 361,851**
LIABILITIES	
Accounts Payable	$ 1,599,714
OPEB Obligation	2,019,603
Security Lending Collateral	122,747,636
Investment Purchases	17,745,043
TOTAL LIABILITIES	**$ 144,111,996**
DEFERRED INFLOWS OF RESOURCES	**$ 182,122**
NET POSITION RESTRICTED FOR PENSIONS	**$ 3,003,925,228**

See accompanying Notes to the Financial Statements.

Statement of Changes in Fiduciary Net Position

For the Year Ended June 30, 2021

ADDITIONS	
Contributions	
Employer	$ 208,212,848
Employee	5,334,102
Service Transfers from Other System	2,080,317
Other	1,761,860
Total Contributions	217,389,127
Investment Income from Investing Activities	
Net Appreciation in Fair Value of Investments	721,374,058
Interest and Dividends	52,743,498
Investment Expenses	(74,603,960)
Net Investment Gain	699,513,596
Income from Securities Lending Activities	
Securities Lending Gross Income	196,742
Securities Lending Expenses, net	(66,087)
Net Income from securities Lending Activities	130,655
Other Income	286
TOTAL ADDITIONS	**$ 917,033,664**
DEDUCTIONS	
Benefits Expenses	
Retiree and Survivor Annuity Benefits	$ 250,420,018
BackDROP Payments	13,585,357
Disability Benefits	2,448,444
Death Benefits	1,255,000
Service Transfer Payments	1,802,900
Employee Contributions Refunds	611,132
Total Benefits Expenses	270,122,851
Administrative Expenses	4,585,473
TOTAL DEDUCTIONS	**$ 274,708,324**
NET INCREASE	**$ 642,325,340**
NET POSITION RESTRICTED FOR PENSIONS	
Beginning of Year	**$ 2,361,599,888**
End of Year	**$ 3,003,925,228**

See accompanying Notes to the Financial Statements.

Notes to the Financial Statements

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

As established under Section 104.020 of the Revised Statutes of Missouri (RSMo.), the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is a body corporate and an instrumentality of the State of Missouri (State). Due to the nature of MPERS' reliance on funding from the Missouri Department of Transportation (MoDOT) and the Missouri State Highway Patrol (MSHP) and control of the overall plan document by the legislative and executive branches of state government, MPERS is considered a part of the State of Missouri financial reporting entity and is included in the State's financial reports as a component unit shown as a pension trust fund.

Note 1 (a) - Basis of Accounting

The financial statements were prepared using the accrual basis of accounting. Contributions are due to MPERS when employee services have been performed. Contributions are recognized as revenues when due, pursuant to statutory requirements. Benefits are recognized when due and payable and expenses are recorded when the corresponding obligations are incurred. Dividend income is recognized when dividends are declared. Interest income is recognized when earned.

Note 1 (b) - Method Used to Value Investments

Investments are reported at fair value on a trade date basis. Bonds and stocks traded on a national or international exchange are valued at the reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments and are discounted at prevailing interest rates for similar instruments. The fair value of real estate and timber investments are based on net asset value estimates provided by the general partners' administrators or portfolio managers, which are compared to independent appraisals. Investments that do not have an established market are reported at estimated fair value. The fair value of the hedge fund portfolios and partnership portfolios are based on valuations of the underlying assets as reported by the general partner or portfolio manager.

Note 1 (c) - Net Investment in Capital Assets

MPERS capitalizes assets with an expected useful life greater than one year and a cost greater than $5,000. Capital assets are depreciated on the straight-line method over the estimated useful lives of the related assets. The estimated useful lives are as follows:

Furniture, Equipment and Software	3-10 years
Building and Improvements	30 years

Note 1 (d) - Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 2 – PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION

MPERS is a body corporate and an instrumentality of the state as a multiple-employer, public employee retirement system with one plan that has three benefit structures known as the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan-2011 Tier. The plan provides retirement, survivor, and disability benefits for employees of MoDOT, MSHP, and MPERS. The plan is administered in accordance with the requirements of a cost sharing, multiple-employer, public employee retirement plan under the Revised Statutes of Missouri. In MPERS are vested the powers and duties specified in sections 104.010 to 104.312, 104.601 to 104.805, and 104.1003 to 104.1093, RSMo., and such other powers as may be necessary or proper to enable it, its officers, employees, and agents to carry out fully and effectively all the purposes outlined pursuant to these sections. Responsibility for the operation and administration of the System is vested in the Board of Trustees, which consists of eleven members, four elected by the active and retired plan members, three Highway and Transportation Commissioners, a State Senator appointed by the President pro tem of the Senate, a State Representative appointed by the Speaker of the House, and the MoDOT Director and MSHP Superintendent who serve as ex-officio members. Detailed information regarding contributions can be found in Note 5.

Generally, all covered employees hired before July 1, 2000, are eligible for membership in the Closed Plan. All covered employees hired on or after July 1, 2000, and before January 1, 2011, are eligible for membership in the Year 2000 Plan. All covered employees hired on or after January 1, 2011, are eligible for membership in the Year 2000 Plan's 2011 Tier.

Membership in the Closed Plan, Year 2000 Plan, and 2011 Tier as of June 30, 2021

	Closed	Year 2000	Tier 2011	Total
Retirees, Beneficiaries, and Disabilities Currently Receiving Benefits	4,852	4,407	32	9,291
Terminated Employees Entitled to But Not Yet Receiving Benefits	989	974	190	2,153
Active Employees				
Vested	1,748	2,116	1,192	5,056
Non-Vested	2	45	2,091	2,138
Total Membership	**7,591**	**7,542**	**3,505**	**18,638**

Closed Plan Description

Employees covered by the Closed Plan are fully vested for benefits upon receiving 5 years of creditable service. Under the Closed Plan, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:

- Age 65 with 4 or more years of creditable service (active);
- Age 65 with 5 or more years of creditable service (terminated & vested);
- Age 60 with 15 or more years of creditable service (active or terminated & vested); or
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active or terminated & vested).

The following provisions apply for uniformed patrol members of the Closed Plan:

- Age 55 with 4 or more years of creditable service (active);
- Age 55 with 5 or more years of creditable service (terminated & vested);
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active or terminated & vested); or
- Mandatory retirement at age 60 (active).

All non-uniformed members may retire early, with reduced benefits, at age 55 with at least 10 years of creditable service.

The base benefit in the Closed Plan is equal to 1.6% multiplied by the final average pay multiplied by years of creditable service. For members of the uniformed patrol, the base benefit is calculated by applying the same formula, then multiplying the product by 1.333333.

Retired uniformed members will receive an additional benefit of $90 per month, plus cost-of-living adjustments (COLAs), until attainment of age 65. This payment, however, is reduced by any amount earned during gainful employment. This benefit is not available to uniformed members hired on or after January 1, 1995, or to vested deferred members.

For members employed prior to August 28, 1997, COLAs are provided annually based on 80% of the increase in the consumer price index for all urban consumers for the United States (CPI-U). The minimum rate is 4% and the maximum rate is 5%, until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated, and the annual COLA rate will be equal to 80% of the increase in the CPI-U (annual maximum of 5%). For members employed on or after August 28, 1997, COLAs are provided annually based on 80% of the increase in the CPI-U, up to a maximum rate of 5%.

The BackDROP is a payment option that is available to eligible members upon retirement. This option provides for a benefit to be calculated as if the member elected to retire at a previous date. If the BackDROP is elected, the monthly benefit payable on the actual retirement date is based on the benefit that would have been received by the member had he/she left employment and retired on the BackDROP date. In addition, the member will receive a lump sum payment equal to 90% of the life income annuity amount the member would have received during the BackDROP period. This lump sum amount includes any COLAs and other benefit increases; also, credit will be received for the unused sick leave balance as of the date of retirement.

Notes to the Financial Statements

The life income annuity payment option (which contains no provision for survivorship) and the life income with 60 or 120 month guaranteed payment options are available to all members. Joint and 50% or 100% survivor options are available if married at the time of retirement. In the Closed Plan, the reduction for the joint & 100% survivor option is based on the difference between the age of the member and the survivor. There is no reduction for the joint and 50% survivor option.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse as beneficiary if:

- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect a payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving normal or work-related disability benefits, on or after September 28, 1985, are provided a $5,000 death benefit payable to designated beneficiaries.

Year 2000 Plan Description

Employees covered by the Year 2000 Plan are fully vested for benefits upon earning 5 years of creditable service. Under the Year 2000 Plan, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:

- Age 62 and with 5 or more years of creditable service (active or terminated & vested);
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active).

The following provisions apply for uniformed patrol members of the Year 2000 Plan:

- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active);
- Mandatory retirement at age 60 (active only).

All members may retire early with reduced benefits at age 57 with at least 5 years of creditable service.

The base benefit in the Year 2000 Plan is equal to 1.7% multiplied by the final average pay multiplied by years of creditable service. Members retiring under the Rule of 80, and uniform patrol members retiring at the mandatory retirement age (currently 60), receive an additional temporary benefit until age 62. The temporary benefit is equivalent to 0.8% multiplied by final average pay multiplied by years of creditable service.

COLAs are provided annually based on 80% of the increase in the CPI-U, up to a maximum rate of 5%.

The BackDROP is a payment option that may be available to members upon retirement. This option provides for a monthly benefit to be calculated as if the member elected to retire at a previous date. If the BackDROP is elected, the monthly benefit payable on the actual retirement date is based on the benefit that would have been received by the member had he/she left employment and retired on the BackDROP date. In addition, the member will receive a lump sum payment equal to 90% of the life income annuity amount the member would have received during the BackDROP period. This lump sum amount includes any temporary benefits, COLAs, and other benefit increases; also, credit will be received for the unused sick leave balance as of the date of retirement.

The life income annuity payment option (with no provision for survivorship) and the life income with 120 or 180 months guaranteed payment options are available to all members. Joint and 50% or 100% survivorship options are available if married at the time of retirement. The reduction for the joint and 50% or 100% survivor options is based on the member's age at retirement, as well as the age difference between the member and the survivor.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse for survivor benefits if:

- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect the payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving work-related disability benefits, on or after July 1, 2000, are provided a $5,000 death benefit payable to designated beneficiaries.

<u>Year 2000 Plan-2011 Tier Description</u>
Employees covered by the 2011 Tier are fully vested for benefits upon earning 5 years of creditable service if they were active on or after January 1, 2018. Under the 2011 Tier, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:

- Age 67 and with 5 or more years of creditable service (active or terminated & vested);
- "Rule of 90" – at least age 55 with sum of member's age and service equaling 90 or more (active only).

Active MoDOT and civilian employees may retire early with reduced benefits at age 62 with at least 5 years of creditable service. The following provisions apply for uniformed patrol members of the 2011 Tier:

- Age 55 and with 5 or more years of creditable service (active only);
- Mandatory retirement at age 60 with no minimum service amount (active only).

Terminated and vested uniformed patrol employees may retire at age 67 with 5 or more years of creditable service.

The base benefit in the 2011 Tier is equal to 1.7% multiplied by the final average pay multiplied by years of creditable service. Members retiring under the Rule of 90, and uniform patrol members retiring at the mandatory retirement age (currently 60) or at age 55 with 5 years of creditable service, receive an additional temporary benefit until age 62. The temporary benefit is equivalent to 0.8% multiplied by final average pay multiplied by years of creditable service.

COLAs are provided annually based on 80% of the change in the CPI-U, up to a maximum rate of 5%.

The life income annuity payment option (with no provision for survivorship) and the life income with 120 or 180 months guaranteed payment options are available to all members. Joint and 50% or 100% survivorship options are available if married at the time of retirement. The reduction for the joint and 50% or 100% survivor options is based on the member's age at retirement, as well as the age difference between the member and the survivor.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse for survivor benefits if:

- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect the payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving work-related disability benefits, on or after January 1, 2011, are provided a $5,000 death benefit payable to designated beneficiaries.

Contributions

Beginning January 1, 2011, employee contributions of 4% of gross pay are required for those covered by the Year 2000 Plan-2011 Tier.

Employer contributions are determined through annual actuarial valuations. Administrative expenses are financed through contributions from participating employers and investment earnings.

Participating employers are required to make contributions to the plan based on the actuarially determined rate. Detailed information regarding contributions can be found in Note 5.

NOTE 3 – DEPOSITS AND INVESTMENTS

The Board of Trustees has established policies and procedures by which funds are invested. Section 104.150, RSMo., provides the authority for the Board to invest MPERS funds. Plan assets are invested in a diversified portfolio following prudent standards for preservation of capital, with the goal of achieving the highest possible rate of return consistent with MPERS' tolerance for risk. The Board of Trustees establishes MPERS' asset allocation policy and may amend the policy. The following is MPERS' current asset allocation policy:

Asset Class	Target Allocation
Public Equity	40.0%
Private Equity	10.0%
Traditional Fixed Income	22.5%
Opportunistic Debt	7.5%
Real Assets	10.0%
Real Estate	10.0%
Cash	0.0%

Note 3 (a) - Deposit and Investment Risk Policies

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. Within the traditional asset classes (equities and fixed income), the consultant will aggregate exposures across asset classes to create measures of concentration including industries, countries, and security issuer for Investment staff review.

Investment Custodial Credit Risk

Custodial credit risk is an investment risk that, in the event of the failure of the counterparty to a transaction, the System will not be able to recover the value of its investment or the collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either: a) the counterparty or b) the counterparty's trust department or agent but not in the System's name. It is the policy of the System to require that all investments be clearly marked as to ownership and, to the extent possible, shall be registered in the name of the System.

Cash Deposit Custodial Credit Risk

Cash deposit custodial credit risk is the risk that, in the event of the failure of depository financial institution, the System will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party. Missouri state law requires that all public funds must be collateralized with acceptable securities having fair values of at least 100% of the amount of funds on deposit (less any amount covered by FDIC insurance).

Market Risk

Market risk is the risk that the fair value of an investment will be adversely impacted due to a change in value of the underlying market. The three primary market risks prevalent in the System's investment portfolio are equity prices, interest rates, and foreign currencies. Equity risk is the risk that stock prices fall and/or the volatility in the equity market increases. Interest rate risk is the risk

that fixed income securities (or any investment primarily valued on a yield basis) will drop in value due to an increase in interest rates. Currency risk is the risk that changes to foreign exchange rates will adversely impact the fair value of non-U.S. Dollar denominated assets. The System protects the portfolio against market risks by adopting a diversified asset allocation that limits the amount of exposure to each underlying market risk. Market risks are also controlled by monitoring the types, amounts, and degree of risk that each investment manager takes for their specific mandate.

Investment Credit Risk

Investment credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Unless authorized under a separate Investment Management Agreement or operating agreement, it is the policy of the System to limit fixed income managers to purchasing securities that possess a minimum credit rating of “Baa” by Moody’s and “BBB” by Standard & Poor’s. Issues subsequently downgraded below these ratings must be brought to the attention of the Chief Investment Officer. Where counterparty risk is present, the System’s investment managers seek to control credit risk through counterparty credit evaluations and approvals, counterparty credit limits and exposure monitoring procedures.

Note 3 (b) - Cash Deposits

Cash balances include short-term securities held by the custodial bank to meet future obligations and operating balances held by the depository bank. As of June 30, 2021, MPERS had a carrying amount of deposits of $(325,862), and a bank balance of $16. The FDIC covered the bank balances. To maximize investment income, cash is invested in overnight repurchase agreements, thus causing the negative cash amount disclosed above. The balances in these repurchase agreements on June 30, 2021 totaled $754,788. As of June 30, 2021, no investments were held as repurchase agreements that were uninsured or unregistered, with securities held by the counterparty or by its trust department or agent but not in MPERS’ name.

Note 3 (c) – Concentrations

No investments in any one organization (other than those issued or sponsored by the U.S. government and those in pooled investments) represent 5% of plan net position.

Note 3 (d) – Rate of Return

For the year ended June 30, 2021, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 30.79%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 3 (e) – Investments

The following table shows MPERS’ investments by type.

Summary of Investments by Type as of June 30, 2021

	Carrying Amount	Fair Value
Equities	$ 227,541,615	$ 446,097,367
Fixed Income	618,177,137	639,560,365
Limited partnerships	1,118,507,607	1,223,937,373
Hedge	65,168,948	108,412,343
Short Term Securities	585,284,838	585,284,838
Securities Lending Collateral	117,448,756	117,448,756
Total Investments	**$2,731,374,113**	$3,120,741,042
Reconciliation to Statement of Fiduciary Net Position:		
Less: Repurchase Agreements		(754,788)
Less: Securities Lending Collateral		(117,448,756)
Investments per Statement of Fiduciary Net Position		**$3,002,537,498**

Notes to the Financial Statements

Certain investments are not listed on national exchanges, over-the-counter markets, nor do they have quoted market prices. Their valuation is based on the most current net asset values, independent appraisals, and/or good faith estimates of the investment's fair value provided by the general partner or portfolio manager, cash flow adjusted through fiscal year end. The estimated fair value of these investments may differ significantly from values that would have been used had a ready market existed. The following investments were priced using those methods and comprised 44.37% of the total fair value of the System's investments as of June 30, 2021:

	Fair Value
Hedge Funds	$ 108,412,343
Limited Partnerships	1,223,937,373
	$1,332,349,716

Note 3 (f) – Fair Value Measurements

MPERS categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements).

Level 1: Unadjusted quoted prices for identical instruments in active markets.

Level 2: Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.

Level 3: Values derived from valuation techniques in which significant inputs are unobservable. Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

Notes to the Financial Statements

Investments Measured at Fair Value, June 30, 2021

Investments by Fair Value Level	Fair Value	Level 1	Level 2	Level 3
Short Term Securities	$ 567,457,290	$567,457,290	$ 0	$ 0
Debt Securities				
Collateralized Debt Obligations	254,315,047	0	96,655,147	157,659,900
Commercial Mortgage-Backed Securities	37,667,655	0	28,925,422	8,742,233
Corporate Bonds	1,267,340	0	1,267,340	0
Government Commercial Mortgage-Backed Securities	10,963,276	0	22,115	10,941,161
Government Mortgage-Backed Securities	22,775,497	0	18,552,005	4,223,492
Municipal Bonds	150,014,371	0	79,350,406	70,663,965
U.S. Government Agencies	74,544,469	0	74,544,469	0
U.S. Treasury Securities	66,708,152	0	66,708,152	0
Total Debt Securities	618,255,807	0	366,025,056	252,230,751
Equity Securities				
Communication Services	1,151,402	1,151,402	0	0
Consumer Discretionary	6,523,710	6,523,710	0	0
Consumer Staples	3,504,267	3,504,267	0	0
Energy	200,730	200,730	0	0
Equity Other	32,323,105	32,323,105	0	0
Financials	53,375,349	53,151,573	223,776	0
Health Care	5,439,057	5,439,057	0	0
Industrials	6,329,905	6,329,905	0	0
Information Technology	8,788,901	8,788,901	0	0
Materials	380,803	380,803	0	0
Real Estate	13,267,423	13,267,423	0	0
Utilities	860,931	860,931	0	0
Total Equity Securities	132,145,583	131,921,807	223,776	0
Private Markets				
Private Equity	477,536,803	0	0	477,536,803
Real Estate	132,861,937	(56)	0	132,861,993
Real Assets	333,377,752	(422,639)	0	333,800,391
Opportunistic Debt	310,913,595	41,423,860	0	269,489,735
Total Private Markets	1,254,690,087	41,001,165	0	1,213,688,922
Investment Derivative Instruments				
Equity Swaps	(1,793,670)	0	(1,793,670)	0
Total Investment Derivative Instruments	(1,793,670)	0	(1,793,670)	0
Total Investment by Fair Value Level	$2,570,755,097	**$740,380,262**	**$364,455,162**	**$1,465,919,673**
Investments Measured at Net Asset Value				
Commingled International Equity Fund	274,577,163			
Equity Long/Short	19,691,391			
Event	17,475,869			
Global Asset Allocation	29,580,474			
In-Liquidation	988,098			
Multi-Strategy	19,374,349			
Structured Credit - Relative Value	1,292,751			
Private Real Estate Fund	69,098,528			
Total Investments Measured at Net Asset Value	432,078,623			
Total Investments	**$3,002,833,720**			
Reconciliation to Statement of Fiduciary Net Position				
Total Investments Measured at Fair Value and Derivatives	$3,002,833,720			
Investment Sales Receivable	(13,388,650)			
Investment Purchases Payable	17,745,043			
Accrued Interest and Income	(4,808,672)			
Accrued Expenses	156,057			
Total Investments per Statement of Fiduciary Net Position	**$3,002,537,498**			

Notes to the Financial Statements

Investments listed as level 1 include equity securities and futures contracts where the price comes from an exchange.

Investments listed as level 2 include debt securities where an independent pricing evaluator had direct observable information including: trading volume, multiple sources of market data and benchmark spreads. The equity index swap is included because the valuation inputs include an observable interest rate and the underlying index.

Investments listed as level 3 include debt securities where an independent pricing evaluator did not have direct observable information and had limited market information for comparable securities. Significant inputs used in the valuation are not available aside from the evaluator providing the price. Direct investments in private equity, real estate, credit, and real assets are included because the valuation techniques utilize discounted cash flows or other non-observable market information by manager.

Private Markets Measured at Fair Value as of June 30, 2021

Private Markets	**Fair Value**	**Unfunded Commitments**
Private Equity	$ 477,536,803	$122,195,641
Real Estate	132,861,937	102,004,470
Real Assets	333,377,752	112,840,248
Opportunistic Debt	310,913,595	232,133,151
Total Private Markets	**$1,254,690,087**	**$569,173,510**

Private Markets

Private equity, real estate, real assets, and opportunistic debt are the four asset classes that fall into the category of private market funds. These funds invest in the equity or debt of private companies.

Private Equity: The private equity portfolio includes 26 direct fund investments and three fund of fund investments. These funds mostly invest in private companies adding value through operational or industry expertise and vast networks. The majority of the private equity allocation is in buyout funds with a smaller portion in venture capital and growth equity funds. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years.

Real Estate: The real estate portfolio consists of 26 real estate funds. The noncore real estate book includes 22 real estate funds that invest in value-add or opportunistic strategies. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years. The remaining four investments are in core real estate funds. Three of these funds are open-ended. Two are eligible for redemption on a quarterly basis and one on a daily basis.

Real Assets: The real asset portfolio contains 30 funds that invest in private energy, aviation, mining, and shipping companies. The timber portfolio, which includes both ownership in timber funds and direct timber investments, is also within the real assets portfolio. The timber portfolio has 12 direct timber investments. These funds and investments are not eligible for redemption. Distributions are received as underlying investments and investments within the funds are liquidated, which on average can occur over the span of six to ten years.

Opportunistic Debt: The opportunistic debt portfolio, comprised of 34 funds, provide financing to various companies. While this portfolio has a U.S. bias, some funds invest internationally with exposures in Europe and Asia. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of three to five years.

Notes to the Financial Statements

Investments Measured at Net Asset Value as of June 30, 2021

Investments at Net Asset Value	**Net Asset Value**	**Unfunded Commitments**	**Redemption Frequency (If Currently Eligible)**	**Redemption Notice Period**
Hedge Funds				
Equity Long/Short	$ 19,691,391	$ 0	Quarterly	45 days
Event Driven	17,475,869	0	Monthly	90 days
Global Asset Allocation	29,580,474	0	Monthly	5-60 days
In-Liquidation	988,098	0	In Liquidation	
Multi-Strategy	19,374,349	0	Monthly	60-90 days
Structured Credit – Relative Value	1,292,751	0	Quarterly	60 days
Total Hedge Funds	88,402,932	0		
Commingled International Equity Funds	274,577,163	0	Daily, Monthly	0-30 days
Private Real Estate Funds	69,098,528	0	Daily	90 days
Total Investments at Net Asset Value	**$432,078,623**	**$ 0**		

Hedge Funds

Equity Long/Short: Consisting of one fund, this strategy invests in both long and short in Asia Pacific equity securities, with a goal of adding growth and minimizing market exposure. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next six months.

Event Driven: Consisting of one fund, this strategy seeks to gain an advantage from pricing inefficiencies that may occur at the onset or aftermath of a merger, corporate action, or related event. Due to contractual lock-up restrictions, the value of this fund is eligible for redemption in the next four months.

Global Asset Allocation: Consisting of one fund, this strategy is highly diversified and uses fundamental research to develop systematic rules for trading positions. Due to contractual lock-up restrictions, the value of this fund is eligible for redemption in the next 35 days.

Hedge Funds in Liquidation: MPERS currently has a small investment in two hedge funds that are in liquidation. These funds have closed and MPERS is awaiting the sale of final assets.

Multi-Strategy: The two funds that make up this group aim to pursue varying strategies in order to diversify risks and reduce volatility. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next six months.

Structured Credit – Relative Value: MPERS currently has one fund that is in liquidation in this strategy.

Commingled International Equity Funds

MPERS invests in three international equity funds that are considered to be commingled in nature. Due to contractual lock-up restrictions, 65% of this capital is eligible for redemption in one month; the remaining 35% has daily liquidity.

Private Real Estate Funds

MPERS invests in three core private real estate funds that are commingled in nature. Two are eligible for redemption on a quarterly basis and one on a daily basis.

Note 3 (g) – Investment Interest Rate Risk
The following table summarizes the maturities of government obligations, corporate bonds, convertible corporate bonds, mortgages, and asset-backed securities which are exposed to interest rate risk.

Summary of Weighted Average Maturities at June 30, 2021

		Investment Maturities (in years)			
Investment Type	**Fair Value**	**Less than 1**	**1 – 5**	**6 – 10**	**More than 10**
Asset-Backed Securities	$277,109,038	$ 0	$ 9,413,085	$113,960,935	$153,735,018
Commercial Mortgage-Backed Securities	27,372,329	0	0	0	27,372,329
Corporate Bonds	5,348,791	0	1,354	210,395	5,137,042
Government Agencies	75,994,553	0	1,483,605	21,036,822	53,474,126
Government Bonds	42,720,547	0	0	10,153,125	32,567,422
Government Mortgage-Backed Securities	20,718,810	0	193,698	342,791	20,182,321
Government-Issued Commercial Mortgage-Backed Securities	1,160,954	0	0	0	1,160,954
Index Linked Government Bonds	23,631,391	0	0	9,242,861	14,388,530
Municipal/Provincial Bonds	155,388,929	227,703	11,583,203	33,666,870	109,911,153
Non-Government-Backed C.M.O.'s	10,115,023	0	656,594	118,680	9,339,749
Total	**$639,560,365**	**$ 227,703**	**$ 23,331,539**	**$188,732,479**	**$427,268,644**

NOTE 3(h) – Investment Credit Ratings

The table below summarizes the credit ratings of the government obligations, corporate bonds, mortgages, and asset-backed securities.

Summary of Credit Ratings as of June 30, 2021

Investment Type	AAA	AA	A	BBB	B	CCC	CC	D	Not Rated	US Gov't Guaranteed	Total
Asset-Backed Securities	$ 84,415,007	$ 59,181,314	$ 6,460,282	$ 0	$ 8,764,185	$ 0	$ 0	$ 0	$118,288,250	$ 0	$277,109,038
Commercial Mortgage-Backed Securities	9,222,004	2,205,244	0	0	0	0	0	0	15,911,090	33,991	27,372,329
Corporate Bonds	0	5,136,518	0	210,395	0	0	0	0	1,878	0	5,348,791
Government Agencies	0	61,925,620	0	0	0	0	0	0	0	14,068,933	75,994,553
Government Bonds	0	0	0	0	0	0	0	0	5,491,250	37,229,297	42,720,547
Government Mortgage-Backed Securities	0	0	0	0	0	0	0	0	57,487	20,661,323	20,718,810
Government-Issued Commercial Mortgage-Backed Securities	0	0	0	0	0	0	0	0	0	1,160,954	1,160,954
Index Linked Government Bonds	0	0	0	0	0	0	0	0	9,242,861	14,388,530	23,631,391
Municipal/Provincial Bonds	40,538,097	94,275,961	650,160	0	0	0	0	0	19,924,711	0	155,388,929
Non-Government-Backed C.M.O.'s	27,639	0	0	177,953	161,158	281,494	99,341	531,511	8,835,927	0	10,115,023
Total	**$134,202,747**	**$222,724,657**	**$ 7,110,442**	**$ 388,348**	**$ 8,925,343**	**$ 281,494**	**$ 99,341**	**$ 531,511**	**$177,753,454**	**$ 87,543,028**	**$639,560,365**

Note 3 (i) – Investment Foreign Currency Risk

Currency risk is the risk that changes to foreign exchange rates will adversely impact the fair value of non-U.S. Dollar denominated assets. The following table summarizes MPERS' exposure to foreign currencies for all assets that are held in custody at the System's custodial bank. MPERS has exposure to foreign currencies in other areas of the portfolio, such as commingled international funds, hedge funds and private partnerships, which are held in the custody of other banks acting as administrators for the funds.

Exposure to Foreign Currency Risk as of June 30, 2021

Foreign Currency	Equities	Real Estate / Partnerships	Total
Australian Dollar	$ 433,269	$ 0	$ 433,269
British Pound Sterling	397,170	1,944,403	2,341,573
Canadian Dollar	172,571	0	172,571
Euro	986,522	30,864,787	31,851,309
Hong Kong Dollar	660,127	0	660,127
Japanese Yen	1,029,251	0	1,029,251
Singapore Dollar	339,175	0	339,175
Swedish Krona	242,859	0	242,859
Total Exposure Risk	**$ 4,260,944**	**$32,809,190**	**$37,070,134**

Note 3 (j) – Securities Lending

In accordance with the Board of Trustees' investment policy, MPERS participates in a securities lending program. The Northern Trust Company administers the program. There are no restrictions on the amount of securities that may be lent.

Securities that may be loaned include U.S. government and agency securities, corporate equity, and fixed income securities. Collateral may include cash, U.S. government securities and irrevocable letters of credit. U.S. securities are loaned in exchange for collateral valued at 102% of the fair value of the securities, plus any accrued interest. Non-U.S. securities are loaned in exchange for collateral valued at 105% of the fair value of the securities, plus any accrued interest. On June 30, 2021, MPERS had no credit risk exposure to borrowers since the amount of collateral exceeded the amount of the loans.

Non-cash collateral cannot be pledged or sold unless the borrower defaults. The average term of the System's loans was approximately 221 days as of June 30, 2021. Cash open collateral is invested in a short-term investment pool, which had an interest sensitivity of 30 days as of June 30, 2021. Cash collateral may also be invested separately in "term loans", in which case the investments match the loan term. These loans can be terminated on demand by either lender or borrower. There were no known violations of legal or contractual provisions, or borrower or lending agent default losses. There were no dividends or coupon payments owing on the securities lent. Securities lending earnings are credited on approximately the fifteenth day of the following month.

Indemnification deals with a situation in which a client's securities would not be returned due to the insolvency of a borrower and Northern Trust would fail to live up to its contractual responsibilities relating to the lending of those securities. Northern Trust's responsibilities include performing appropriate borrower and collateral investment credit analyses and demanding adequate types and levels of collateral.

The following table summarizes the collateral held (including both cash collateral recognized in the Statement of Fiduciary Net Position and non-cash collateral).

Collateral Held as of June 30, 2021

Investment Type	
Equities	$ 29,626,467
Government & Government-Sponsored Securities	64,943,005
Agencies	28,178,164
Total	**$122,747,636**

Note 3 (k) – Derivatives

A derivative financial instrument is an investment whose value depends on the values of one or more underlying assets, financial indexes, or commodity prices. These investments include futures contracts, options contracts, and forward foreign currency exchange. Derivative financial instruments involve credit risk and market risk, as described in Note 3(a), in varying levels.

Through MPERS' external managers, MPERS holds investments in futures contracts, swaps contracts, options contracts, and forward foreign currency exchange contracts. MPERS enters into futures and swaps contracts to gain exposure to certain markets and enters into forward foreign exchange contracts primarily to hedge foreign currency exposure.

The notional value related to these derivative instruments is generally not recorded on the financial statements; however, the change in fair value of these instruments is incorporated in performance. The notional/fair value of $658,164,518 for the various contracts in MPERS' portfolio as of June 30, 2021, is recorded in investments on the Statement of Fiduciary Net Position. The change in fair value of $89,762,141 for the year ended June 30, 2021, is recorded in investment income on the Statement of Changes in Fiduciary Net Position.

Investment Derivatives as of June 30, 2021

Type	Classification	Notional / Fair Value	Unrealized Gain
Futures Contracts	Investments, at fair value	$498,503,501	$73,267,008
Swaps Contracts	Investments, at fair value	159,661,017	16,495,133
	Total	**$658,164,518**	**$89,762,141**

Through the use of derivatives, MPERS is exposed to risk that the counterparties involved in the contracts are unable to meet the terms of their obligation. MPERS' investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. MPERS anticipates the counterparties will be able to satisfy their obligations under contract. The associated counterparty's credit rating is an A+.

NOTE 4 – RECEIVABLES

Receivables as of June 30, 2021

Type	Total
Contributions – MoDOT	$ 5,470,011
Contributions – MSHP Non-Uniformed	1,223,026
Contributions – MSHP Uniformed	2,049,818
Contributions – MPERS	115,921
Investment Interest & Income	4,808,672
Investment Sales	13,388,650
Miscellaneous	3,000
Total	**$27,059,098**

Notes to the Financial Statements

NOTE 5 – CONTRIBUTIONS

MoDOT, MSHP, and MPERS make contributions to the System, as do employees covered under the Year 2000 Plan- 2011 Tier. MPERS permanent funding policy provides for actuarially determined employer contributions using the entry-age normal cost method on a closed group basis (consisting of normal cost and amortization of any unfunded accrued liabilities over a 30-year period, beginning July 1, 2006). (The objective is to reduce the period by one year each year.) A temporary accelerated policy has been adopted where the total contribution is based on entry-age normal cost plus a 15-year amortization period for unfunded retiree liabilities and a 30-year amortization period for other unfunded liabilities. Both amortization periods are closed periods starting July 1, 2010. This temporary accelerated policy was adopted by the MPERS' Board of Trustees on September 17, 2009 and will remain in effect until such time as the retiree liability becomes 100% funded or the permanent policy produces a higher contribution rate. Actuarially determined rates, expressed as percentages of annual covered payroll, provide for amounts sufficient to fund those benefits designated by state statute to be funded in advance. Actuarial assumptions used to compute contribution requirements are the same as those used to compute the pension benefit obligation. The employee contribution rate for members of the Year 2000 Plan-2011 Tier is set by statute.

Required employer contributions totaling $208,212,848 for fiscal year 2021, represent funding of normal costs and amortization of the unfunded accrued liability. Actual contributions made were 100% of required contributions. Contribution rates as of June 30, 2021, as determined by the actuarial valuation for the year ended June 30, 2019, are shown in the following table. The Board established actual rates to be the same as the actuarially determined rates.

Contribution Rates

MoDOT, MPERS & Civilian Patrol	Uniformed Patrol	2011 Tier Employee
58.00%	58.00%	4.00%

At the September 26, 2014, Board meeting, the Board adopted the use of a contribution rate stabilization reserve that would result in an MPERS employer contribution rate similar to the fiscal year 2015 rates. The reserve is intended to keep the contribution relatively level over time and may be used if the investment market experiences a downturn in the future. The Board further adopted (in February 2015) that the employer contribution rate would not fall below 58% unless 1) the fund became fully funded or 2) the contribution stabilization reserve reached $250 million. The balance of the reserve as of June 30, 2021, was $96,020,617.

NOTE 6 – DEFERRED RETIREMENT OPTION PROGRAM

MPERS currently provides a BackDROP option. This is an election made at the time of actual retirement. In effect, it provides members an option to elect to receive a portion of their benefits as cash. Since the election is not made until the member actually retires, the option is not treated as a DROP provision in accordance with generally accepted accounting principles.

NOTE 7 – NET PENSION LIABILITY OF EMPLOYERS

The components of the net pension liability of the employers at June 30, 2021, were as follows:

Total pension liability	$ 4,344,072,912
Plan fiduciary net position	(3,003,925,228)
Employers' net pension liability	$ 1,340,147,684
Plan fiduciary net position as a percentage of the total pension liability	69.15%
Covered payroll	$ 359,409,940
Employers' net pension liability as a percentage of covered payroll	372.87%

Actuarial Assumptions

The total pension liability amounts were determined by actuarial valuations as of June 30, 2021, using the following actuarial assumptions, applied to all prior periods included in the measurement:

Inflation	3.00%
Salary Increases	3.00% to 12.45%
Investment Rate of Return	6.50%

The mortality tables, for post-retirement mortality, used in evaluating allowances to be paid to non-disabled pensioners were the RP-2014 Healthy Mortality Tables projected to 2022 using projection scale MP-2017. Pre-retirement mortality used were the RP-2014 Employee Mortality Table projected to 2022 using projection scale MP- 2017 and multiplied by a factor of 65%. Disabled pension mortality was based on RP-2014 Disabled Retiree Annuitant Mortality Tables projected to 2022 using projection scale MP-2017.

The long-term (30 year) expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return were adopted by the plan's trustees after considering input from the plan's investment consultants and actuary. These estimates for each major asset class included in MPERS' target asset allocation as of June 30, 2021, (see Note 3) are summarized in the following table:

Asset Class	Long-Term Expected Rate of Return
Global Equity	2.6%
Private Equity	6.6%
Fixed Income	(0.4)%
Opportunistic Debt	4.1%
Real Assets	3.1%
Real Estate	2.5%

Discount Rate

A single discount rate of 6.50% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 6.50%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. The employers pay the same contribution rate for each employee regardless of the plan the employee was hired under. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's June 30, 2021, net pension liability, calculated using a single discount rate of 6.50%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Current Single Discount			
	1% Decrease 5.50%	**Rate Assumption 6.50%**	**1% Increase 7.50%**
Net Pension Liability	$1,861,001,061	$1,340,147,684	$906,820,785

NOTE 8 – EMPLOYER PROPORTIONATE SHARE

MPERS, as the administrative agent for the pension system, is also an employer of the pension system. The administrative expenses of the pension system are included in the deductions to the pension system's fiduciary net position. While the employer contributions of the other participating employers are funded from outside revenue sources, the employer contributions of MPERS are funded from sources already recognized as revenues, such as earnings on plan investments or contributions paid by the other participating employers. Attempting to allocate a portion of the net pension liability to MPERS as an employer would result in an allocation of the net pension liability to the other participating employers. Accordingly, MPERS excludes its contributions from the employer proportionate share calculation for the reporting of a net pension liability, by assigning itself a proportionate share of 0%. This exclusion, in essence, shifts the portion of the net pension liability that would accrue to MPERS to the other participating employers.

NOTE 9 – PERSONNEL SERVICES AND RETIREMENT PLAN

MPERS employed 18 full-time employees as of June 30, 2021. Eleven former MPERS employees have retired.

Full-time employees are members of the System (see Note 8). For these employees, MPERS accrued 58.00% of payroll during fiscal year 2021, amounting to $1,219,468. The amounts for fiscal year 2021 and the four preceding years are shown below. These amounts are recorded as both a contribution and administrative expense. Information regarding the retirement plans can be found in Notes 2 and 5.

Net Obligations

Year Ended	**Annual Contribution Accrual**	
June 30	**Percent**	**Dollars**
2017	58.00%	$1,087,268
2018	58.00	1,127,506
2019	58.00	987,370
2020	58.00	987,743
2021	58.00	1,219,468

NOTE 10 – OTHER POST-EMPLOYMENT BENEFITS (OPEB)

In addition to the retirement benefits described previously, MPERS provides a portion of health care insurance through the MoDOT and MSHP Medical and Life Insurance Plan (Insurance Plan) in accordance with Missouri State statutes. The Insurance Plan is considered an agent multiple employer defined benefit plan and is administered by MoDOT. The Insurance Plan is financed on a pay-as-you-go basis and is an internal service fund of MoDOT. As of June 30, 2021, there were 9 inactive (retired) members and 17 active employees participating in the Insurance Plan.

Medical insurance benefits are established by the Insurance Plan's Board of Trustees and are approved by the Missouri Highways and Transportation Commission. Benefits include general inpatient and outpatient medical services; mental, nervous and substance abuse care; and prescriptions. Eligible members are employees who retired from the System with a minimum of 5 years of service and who participate in the Insurance Plan. MoDOT issues a publicly available financial report that includes financial statements and required supplementary information for the Insurance Plan. Requests for this report should be addressed to MoDOT, Financial Services Division, P.O. Box 270, Jefferson City, MO 65102.

Employer and member contributions are established by the Insurance Plan's Board of Trustees and are approved by the Missouri Highways and Transportation Commission. Premiums vary by coverage categories, which include retirees, certain disabled employees, spouses, certain dependents, and survivors of deceased employees and retirees.

Changes in Total OPEB Liability

MPERS' proportionate share (0.15%) of the Insurance Plan's net OPEB liability is $2,019,603 which was measured as of July 1, 2020, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of that date**.**

Summary of Changes in Net OPEB Liability for the Year Ended June 30, 2021

	Total
Beginning Balance	$1,552,393
Changes for the year:	
Service Cost	51,302
Interest Cost	55,700
Changes of benefit terms	0
Differences between expected and actual experience	452
Changes in assumptions	393,621
Benefit Payments	(33,865)
Net Changes	467,210
Ending Balance	**$2,019,603**

Deferred Outflows and Inflows

For the year ended June 30, 2021, MPERS recognized net OPEB expense of $104,821 MPERS reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

	Deferred Outflows	**Deferred Inflows**
Differences between expected and actual experience	$ 378	$ 18,210
Changes of assumptions or other inputs	329,199	163,912
Contributions subsequent to measurement date	32,274	0
Total	**$361,851**	**$182,122**

Deferred outflows resulting from contributions subsequent to the measurement date will be recognized as a change to the net pension liability in each subsequent year. Other deferred amounts related to OPEB will be recognized in expenses as follows:

Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

Fiscal Year	
2021	$ 30,093
2022	(2,181)
2023	32,060
2024	49,908
2025	62,752
Total Thereafter	7,097
	$179,729

Actuarial Assumptions

The following actuarial assumptions and other inputs, applied to all periods included in the measurement:

Cost method	Entry Age Normal based upon salary
Salary increases	2.50%
Discount rate	2.21%
Investment rate of return	N/A; the plan is unfunded
Health care cost trend rates	5.70%; decreasing to 4.50% in 2025
Retirees' share of benefit-related costs	43.03% - 60.02%
Admin Expense Trend (Inflation) Rate	3.00%

- The salary increases were based on projected salaries, which include COLAs, provided by MoDOT.
- The discount rate was based on Bond Buyer General Obligation 20-Bond Municipal Bond Index.
- Mortality rates were based on Pub-2010 Public Retirement Plans Safety Employees Mortality Table weighted by Headcount projected by MP-2020.
- The actuarial assumptions used in the June 30, 2020 valuation were based on the results of an actuarial experience study for the period July 1, 2019-June 30, 2020.
- It is assumed the current employer and member contributions will continue as approved by the Commission.

Changes of assumptions and other inputs reflect a change in the discount rate from 3.51% in 2020 to 2.21% in 2021.

The following table illustrates the impact of interest rate sensitivity on the Net OPEB Liability as of June 30, 2021:

Interest Rate Sensitivity

	1% Decrease	**Current Discount Rate**	**1% Increase**
Net OPEB Liability	$2,375,656	$2,019,603	$1,596,717

The following table illustrates the impact of healthcare cost trend sensitivity on the Net OPEB Liability as of June 30, 2021:

Healthcare Cost Trend Sensitivity

	1% Decrease	**Current Discount Rate**	**1% Increase**
Net OPEB Liability	$1,556,046	$2,019,603	$2,441,723

NOTE 11 – CAPITAL ASSETS

Summary of Changes in Capital Assets

	June 30, 2020 Balance	Additions	Deletions / Retirements	June 30, 2021 Balance
Land	$ 84,000	$ 75,293	$ 0	$ 159,293
Building	581,619	0	0	581,619
Furniture, Equipment and Software	3,430,652	8,137	0	3,438,789
Less: Accumulated Depreciation	(3,774,595)	(21,889)	0	(3,796,484)
Total	**$ 321,676**	**$ 61,541**	**$ 0**	**$ 383,217**

NOTE 12 – COMMITMENTS

MPERS has committed $1,667,796,294 of which $1,098,622,784 has been invested, leaving total unfunded commitments to private equity, real estate, real assets, and opportunistic debt of $569,173,510 as of June 30, 2021. The total unfunded investment commitments are not recorded in the accompanying Statement of Fiduciary Net Position.

NOTE 13 – RISK MANAGEMENT

MPERS is exposed to various risks of loss related to natural disasters, asset theft or damage, errors and omissions, torts, and employee injuries.

MPERS has purchased commercial insurance related to capital asset loss and damage. Ancillary coverage provided through the property policy includes coverage for accounts receivable, loss of money and securities, employee dishonesty, and forgery and alterations. MPERS carries a $2 million umbrella liability policy. MPERS has coverage through Missouri Highway and Transportation Commission's Self-Insurance Fund related to workers' compensation. MPERS has also purchased a directors and officers liability policy with $1 million aggregate coverage. This coverage is inclusive of legal defense costs and carries a $35,000 deductible. The State's Legal Expense Fund covers all state employees and officers, and MPERS has purchased surety bonds for the executive director and staff. Settlements have not exceeded coverages for each of the past three fiscal years.

MPERS has a disaster recovery plan that provides for continued computer operations at a remote location should the retirement office be unavailable for normal computing operations.

Required Supplementary Information

Schedule of Changes in the Employers' Net Pension Liability
Year Ended June 30

	2021	2020	2019	2018	2017
Total Pension Liability					
Service Cost	$ 43,726,886	$ 44,048,083	$ 43,971,030	$ 46,621,377	$ 45,713,403
Interest on the Total Pension Liability	278,522,994	274,791,358	271,174,089	286,457,436	283,568,441
Benefit Changes	0	0	0	(7,684)	0
Difference Between					
Expected and Actual Experience	(26,471,689)	3,494,582	203,459	(37,173,164)	(37,286,966)
Assumption Change	226,319,675	0	0	142,556,109	0
Benefit Payments	(266,108,191)	(262,710,811)	(255,310,406)	(254,131,209)	(246,617,775)
Refunds	(611,132)	(796,107)	(780,538)	(503,007)	(321,328)
Disability Premiums	(1,600,628)	(1,640,971)	(1,615,860)	(1,601,605)	(1,620,418)
Transfers to Other Retirement Systems	(1,802,900)	(2,457,945)	(2,111,007)	(2,823,042)	(2,724,631)
Net Change in Total Pension Liability	**251,975,015**	**54,728,189**	**55,530,767**	**179,395,211**	**40,710,726**
Total Pension Liability – Beginning	**4,092,097,897**	**4,037,369,708**	**3,981,838,941**	**3,802,443,730**	**3,761,733,004**
Total Pension Liability – Ending (a)	**$4,344,072,912**	**$4,092,097,897**	**$4,037,369,708**	**$3,981,838,941**	**$3,802,443,730**
Plan Fiduciary Net Position					
Contributions – Employer	$ 208,212,848	$ 210,871,852	$ 210,166,927	$ 204,955,180	$ 206,562,924
Contributions – Employee	7,095,963	6,547,351	5,996,344	5,001,418	4,891,932
Pension Plan Net Investment Income	699,644,536	(10,667,857)	154,326,818	197,619,838	220,301,741
Benefit Payments	(266,108,191)	(262,710,811)	(255,310,406)	(254,131,209)	(246,617,775)
Refunds	(611,132)	(796,107)	(780,538)	(503,007)	(321,328)
Disability Premiums	(1,600,628)	(1,640,971)	(1,615,860)	(1,601,605)	(1,620,418)
Pension Plan Administrative Expense	(4,585,473)	(4,291,028)	(4,372,966)	(4,693,492)	(4,515,458)
Net Transfers	277,417	1,025,629	321,363	(955,597)	(980,524)
Net Change in Plan Fiduciary Net Position	**642,325,340**	**(61,661,942)**	**108,731,682**	**145,691,526**	**177,701,094**
Plan Fiduciary Net Position – Beginning	**2,361,599,888**	**2,423,261,830**	**2,314,530,148**	**2,168,838,622**	**1,992,073,946**
Plan Fiduciary Net Position – Ending (b)	**$3,003,925,228**	**$2,361,599,888**	**$2,423,261,830**	**$2,314,530,148**	**$2,169,775,040**
Adjustment – GASB 75 Implementation					**(936,418)**
Plan Fiduciary Net Position – Ending as restated					**2,168,838,622**
Employers' Net Pension Liability (a) – (b)	**$1,340,147,684**	**$1,730,498,009**	**$1,614,107,878**	**$1,667,308,793**	**$1,633,605,108**
Plan Fiduciary Net Position as a % of Total Pension Liability	69.15%	57.71%	60.02%	58.13%	57.06%
Covered Payroll	$ 359,409,940	$ 363,980,262	$ 362,747,630	$ 353,751,292	$ 356,515,416
Employers' Net Pension Liability as a % of Covered Payroll	372.87%	475.44%	444.97%	471.32%	457.95%

Note: These schedules are intended to present information for 10 years but may be built prospectively. Additional years will be displayed as they become available.

Continued on next page.

Required Supplementary Information

Schedule of Changes in the Employers' Net Pension Liability
Year Ended June 30 (continued)

	2016	2015	2014	2013
Total Pension Liability				
Service Cost	$ 45,441,305	$ 45,358,095	$ 44,739,603	$ 44,446,279
Interest on the Total Pension Liability	280,432,068	275,284,910	270,525,608	265,339,848
Benefit Changes	0	0	0	0
Difference Between				
Expected and Actual Experience	(39,810,009)	(13,324,219)	(17,614,321)	(13,690,794)
Assumption Change	0	0	0	204,396,180
Benefit Payments	(236,488,629)	(236,905,323)	(227,958,108)	(220,623,394)
Refunds	(198,106)	(107,395)	(18,686)	(29,300)
Disability Premiums	(1,567,825)	(1,554,676)	(1,531,578)	(1,512,685)
Transfers to Other Retirement Systems	(1,921,451)	(3,147,482)	(1,876,336)	(629,246)
Net Change in Total Pension Liability	**45,887,353**	**65,603,910**	**66,266,182**	**277,696,888**
Total Pension Liability – Beginning	**3,715,845,651**	**3,650,241,741**	**3,583,975,559**	**3,306,278,671**
Total Pension Liability – Ending (a)	**$3,761,733,004**	**$3,715,845,651**	**$3,650,241,741**	**$3,583,975,559**
Plan Fiduciary Net Position				
Contributions – Employer	$ 199,609,396	$ 200,638,571	$ 183,353,841	$ 170,836,117
Contributions – Employee	3,482,513	3,294,162	2,260,563	1,139,450
Pension Plan Net Investment Income	21,432,095	92,645,571	319,445,780	198,141,088
Benefit Payments	(236,488,629)	(236,905,323)	(227,958,108)	(220,619,035)
Refunds	(198,106)	(107,395)	(18,686)	(29,300)
Disability Premiums	(1,567,825)	(1,554,676)	(1,531,578)	(1,512,685)
Pension Plan Administrative Expense	(4,370,860)	(4,066,944)	(3,736,355)	(2,997,225)
Net Transfers	808,228	(2,033,045)	(91,954)	(629,246)
Net Change in Plan Fiduciary Net Position	**(17,293,188)**	**51,910,921**	**271,723,503**	**144,329,164**
Plan Fiduciary Net Position – Beginning	**2,009,367,134**	**1,957,456,213**	**1,685,732,710**	**1,541,403,546**
Plan Fiduciary Net Position – Ending (b)	**$1,992,073,946**	**$2,009,367,134**	**$1,957,456,213**	**$1,685,732,710**
Adjustment – GASB 75 Implementation				
Plan Fiduciary Net Position – Ending as restated				
Employers' Net Pension Liability (a) – (b)	**$1,769,659,058**	**$1,706,478,517**	**$1,692,785,528**	**$1,898,242,849**
Plan Fiduciary Net Position as a % of Total Pension Liability	52.96%	54.08%	53.63%	47.04%
Covered Payroll	$ 344,635,441	$ 342,264,593	$ 336,590,797	$ 323,205,767
Employers' Net Pension Liability as a % of Covered Payroll	513.49%	498.58%	502.92%	587.32%

Note: These schedules are intended to present information for 10 years but may be built prospectively. Additional years will be displayed as they become available.

Required Supplementary Information

Schedule of Employers' Contributions

Last 10 Fiscal Years

	Actuarially Determined Contributions	Actual Contributions	Contribution Deficiency (Excess)	Covered Payroll*	Contributions as a Percentage of Covered Payroll
2012	$164,884,467	$164,884,467	$0	$344,514,139	47.86%
2013	170,836,117	170,836,117	0	329,863,134	51.79
2014	183,353,841	183,353,841	0	336,799,855	54.44
2015	200,638,571	200,638,571	0	342,211,446	58.63
2016	199,609,396	199,609,396	0	344,154,131	58.00
2017	206,562,924	206,562,924	0	356,142,972	58.00
2018	204,955,180	204,955,180	0	353,371,000	58.00
2019	210,166,927	210,166,927	0	362,356,771	58.00
2020	210,871,852	210,871,852	0	363,572,159	58.00
2021	208,212,848	208,212,848	0	358,987,667	58.00

**Values are estimated from contribution rate and actual contribution amount.*

Schedule of Investment Returns

Last 10 Fiscal Years

Fiscal Year Ended June 30	Annual Money-Weighted Rate of Return
2012	2.80%
2013	13.37
2014	17.58
2015	6.62
2016	1.02
2017	11.22
2018	9.20
2019	6.84
2020	(0.44)
2021	30.79

Notes to Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date .... June 30, 2021
Actuarial Cost Method .... Entry Age
Amortized Method .... Level Percentage of Payroll, Closed
Remaining Amortization Period .... 12 Years (single equivalent period)
Asset Valuation Method .... 3-Year Smoothed Market: 20% Corridor
Inflation .... 2.25% (price inflation)
Actuarial Assumptions
- Investment Rate of Return 6.5%
- Projected Salary Increase .... 3.0% to 12.45% (including 3.0% wage inflation)
- Cost-of-Living Adjustments .... 1.8% Compound

Required Supplementary Information

Other Post-Employment Benefits (OPEB) Plan
Schedule of Changes in Net OPEB Liability and Related Ratios for MoDOT and MSHP Medical and Life Insurance Plan

	2021	2020	2019	2018
Total OPEB Liability				
Service Cost	$ 51,302	$ 64,136	$ 66,676	$ 81,000
Interest Cost	55,700	61,346	54,714	49,929
Changes of benefit terms	0	0	0	0
Differences between expected and actual experience	452	(17,475)	(12,565)	0
Changes in assumptions	393,621	(58,897)	(81,559)	(238,129)
Benefit Payments	(33,865)	(35,159)	(34,004)	(37,055)
Net Change in total OPEB liability	467,210	13,951	(6,738)	(144,255)
Total OPEB Liability (Beginning)	**1,552,393**	**1,538,442**	**1,545,180**	**1,689,435**
Total OPEB Liability (Ending)	**$ 2,019,603**	**$ 1,552,393**	**$ 1,538,442**	**$ 1,545,180**
Plan Fiduciary Net Position				
Contributions	$ 33,865	$ 35,159	$ 34,004	$ 37,055
Benefit Payments	(33,865)	(35,159)	(34,004)	(37,055)
Net Change in Plan Fiduciary Net Position	**0**	**0**	**0**	**0**
Plan Fiduciary Net Position (Beginning)	**0**	**0**	**0**	**0**
Plan Fiduciary Net Position (Ending)	**$ 0**	**$ 0**	**$ 0**	**$ 0**
Net OPEB Liability (Ending)	$ 2,019,603	$ 1,552,393	$ 1,538,442	$ 1,545,180
Net Position as a Percentage of OPEB Liability	N/A	N/A	N/A	N/A
Covered-Employee Payroll	$ 1,791,020	$ 1,760,722	$ 1,639,523	$ 790,000
Net OPEB Liability as a Percentage of Payroll	112.76%	88.17%	93.83%	195.59%

Other Post-Employment Benefits (OPEB) Plan
Schedule of MPERS' Proportionate Share of Net OPEB Liability for MoDOT and MSHP Medical and Life Insurance Plan

Year Ended June 30	Proportion of Net OPEB Liability	Proportionate Share of Net OPEB Liability	Covered Employee Payroll	Net OPEB Liability as % of Covered Employee Payroll	Net Position as % of Total OPEB Liability
2018	0.14%	$1,545,180	$ 790,000	195.59%	N/A
2019	0.14%	1,538,442	1,639,523	93.83%	N/A
2020	0.15%	1,552,393	1,760,722	88.17%	N/A
2021	0.15%	2,019,603	1,791,020	112.76%	N/A

Note: These schedules are intended to present information for 10 years but may be built prospectively. Additional years will be displayed as they become available.

Supplementary Information

Schedule of Administrative Expenses
For the Year Ended June 30, 2021

Personnel Services	
Salary Expense	$ 2,056,242
Employee Benefit Expense	1,666,180
Total Personnel Services	**3,722,422**
Professional Services	
Actuarial Services	100,912
Audit Services	50,400
Legislative Consultant	31,200
Board Governance	90,000
Investment Special Consulting	15,000
Insurance Consultant	6,000
Other Consultant Fees	37,335
Fiduciary Insurance	21,368
IT Hosting and Support	270,770
Other	12,763
Total Professional Services	**635,748**
Miscellaneous	
Depreciation	21,888
Meetings / Travel / Education	13,889
Equipment / Supplies	67,511
Printing / Postage	24,269
Bank Service Charge	9,265
Building Expenses	31,058
Other	59,423
Total Miscellaneous	**227,303**
Total Administrative Expenses	**$ 4,585,473**

Supplementary Information

Schedule of Investment Expenses
For the Year Ended June 30, 2021

Investment Income Expenses	
Management and Performance Fees by Asset Class	
Equities	$ 2,827,313
Fixed Income Core	226,106
Opportunistic Debt	16,814,532
Real Estate	5,774,516
Private Equity	31,658,397
Real Assets	9,358,849
Hedge Funds	6,973,160
Total Management and Performance Fees	**$73,632,873**
Investment Custodial Fees	54,402
Performance Management	221,442
General Consultant (Monitoring) Fee	344,141
Professional Fees	515,914
Other Fees / Expenses	(164,812)
Total Investment Income Expenses	**$74,603,960**
Securities Lending Expenses	
Borrower Rebates (Refunds)	$ 10,179
Bank Fees	55,908
Total Securities Lending Expenses	**$ 66,087**

Supplementary Information

Schedule of Consultant and Professional Expenses
For the Year Ended June 30, 2021

Professional / Consultant	Nature of Service	
Gabriel, Roeder, Smith & Co.	Actuarial	$100,912
LexisNexis Risk Data Management	Death Audit Services	1,800
MO Department of Health & Senior Services	Death Audit Services	553
Pension Benefit Information	Death Audit Services	10,297
Deaf Heart Interpreting Services, LLC	Death Audit Services	113
Naught-Naught Agency	Director’s & Officer’s Insurance	21,368
Williams-Keepers, LLC	Financial Audit Services	50,400
Funston Advisory Services, LLC	Governance Consulting	90,000
Midwest Computech	Information Technology	27,712
Huber & Associates	Information Technology	3,300
Levi, Ray & Shoup, Inc.	Information Technology	205,250
Sikich, LLP	Information Technology	31,823
Intermedia	Information Technology	2,685
Thompson Coburn, LLP	Legal Consulting	37,335
Michael G. Winter Consultants, LLC	Legislative Consulting	31,200
Evercore Group, LLC	Market Research	15,000
Charlesworth Benefits	Risk Management Consulting	6,000
Total Consultant and Professional Expenses		**$635,748**